

PATENT ABSTRACTS OF JAPAN

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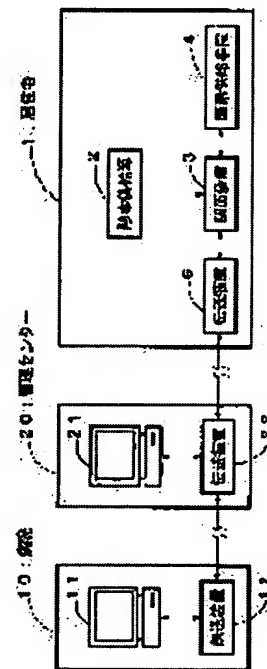
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(54) DETECTION OF PRESCRIPTION ABNORMALITY FOR HOME OXYGEN THERAPY AND MONITORING SYSTEM THEREFOR

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a detecting and monitoring system for prescription abnormalities for home oxygen therapy supplying oxygen according to a prescription in home oxygen therapy.

SOLUTION: The detecting and monitoring system includes a hospital administration unit, a control center administration unit and a residential home administration unit. The hospital administration unit comprises a first computer 11 which stores prescription data of patients receiving home oxygen therapy and a first transmitting device 12. The control center administration unit comprises a second transmitting device 22 and a second computer 21. The residential home administration unit comprises a third transmitting device 5 which receives the prescription data transmitted from the control center administration unit, an oxygen supply source 2, an adjusting device 3 which adjusts and monitors the amount of oxygen based on the prescription data and the oxygen supply means 4 which supplies oxygen to the patient adjusted in amount by the adjusting means 3. In the adjusting means 3 on the part of the residential home administration unit when an abnormality that oxygen administration to the patient is not conducted according to the prescription data is detected, an abnormality occurring alarm is reported to the hospital administration unit by way of the control center administration unit.



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CLAIMS

[Claim(s)]

[Claim 1] The 1st computer which is arranged in a hospital and memorizes a home oxygen medical-treatment patient's prescription data, Hospital side management equipment equipped with the 1st transmission equipment which transmits these prescription data from this 1st computer, The 2nd transmission equipment which receives these prescription data that are arranged in the management pin center, large and sent from this hospital side management equipment, Management pin center, large side management equipment equipped with the 2nd computer which memorizes the received prescription data, The 3rd transmission equipment which receives these prescription data that a patient is, are arranged in a residence and sent from this management pin center, large side management equipment, The oxygen supply which supplies oxygen, and the adjustment which adjusts the amount of oxygen supplied to a home oxygen medical-treatment patient from this oxygen supply, and is supervised based on these prescription data inputted from this 3rd transmission equipment, With this adjustment, it had an oxygen supply means to supply the oxygen to which the amount was adjusted to a patient, and is, and residence side management equipment is included. This ***** side management equipment Prescription malfunction detection / monitoring system for home oxygen medical treatment characterized by notifying the abnormal occurrence alarm at the time of detecting the abnormalities by which the oxygen injection to a patient is not performed as these prescription data in this adjustment to this hospital side management equipment through this management pin center, large side management equipment.

[Claim 2] They are the prescription malfunction detection / monitoring system for a home oxygen medical treatment according to claim 1 characterized by being and residence side management equipment notifying the oxygen injection track record data to said said patient in said adjustment to said hospital side management equipment through said management pin center, large side management equipment further.

[Claim 3] The 3rd computer which memorizes said prescription data into which said adjustment is inputted from said 3rd transmission equipment, Said oxygen supply and oxygen supply way prepared between said oxygen supply means, and the closing motion valve by which is installed in the interior of said oxygen supply way, and closing motion control is carried out based on said prescription data by said 3rd computer, Prescription malfunction detection / monitoring system for a home oxygen medical treatment according to claim 1 or 2 characterized by being prepared in the lower stream of a river of this closing motion valve, detecting the flow rate of the oxygen which flows this oxygen supply way, and including the flow rate sensor which supplies a detection output to this 3rd computer.

[Claim 4] Said 3rd computer is the prescription malfunction detection / monitoring system for a home oxygen medical treatment according to claim 1 or 2 characterized by judging being home or going out of a patient based on ON of this going-out switch, OFF, or the detection output of this carbonic acid gas sensor including the carbonic acid gas sensor which detects the carbon dioxide gas contained in the exhalation of the going-out switch or patient who operates said adjustment in case a patient goes out.

[Claim 5] Said management pin center, large side management equipment is the prescription malfunction detection / monitoring system for a home oxygen medical treatment according to claim 1 or 2 characterized by being constituted so that said hospital side management equipment or said

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the prescription malfunction detection / monitoring system for home oxygen medical treatment.

[0002]

[Description of the Prior Art] Fine oxygen inhalation is required for the patient of chronic respiratory failures, such as *****. It is required to manage the oxygen injection flow rate per time amount, continuation/intermittence, the quiescent time, etc. according to the patient's symptom. However, he wishes to recuperate at home by the problem of the number of beds of a hospital, or a patient's volition in many cases.

[0003]

[Problem(s) to be Solved by the Invention] Originally, the patient who is recuperating at home although the nurse has managed the amount of oxygen inhalation and time amount to eye the top in a hospital is [whether oxygen inhalation is managed as the prescription which the medical practitioner created sure enough, and] a question. Un-proper oxygen inhalation has a bad influence on a patient, and has the trouble of worsening a symptom.

[0004] Then, this invention aims at offering the prescription malfunction detection / monitoring system for home oxygen medical treatment which supplies oxygen as a prescription in home oxygen medical treatment in view of the conventional trouble mentioned above.

[0005]

[Means for Solving the Problem] Invention according to claim 1 made in order to solve the above-mentioned technical problem The 1st computer which is arranged in a hospital and memorizes a home oxygen medical-treatment patient's prescription data, Hospital side management equipment equipped with the 1st transmission equipment which transmits these prescription data from this 1st computer, The 2nd transmission equipment which receives these prescription data that are arranged in the management pin center, large and sent from this hospital side management equipment, Management pin center, large side management equipment equipped with the 2nd computer which memorizes the received prescription data, The 3rd transmission equipment which receives these prescription data that a patient is, are arranged in a residence and sent from this management pin center, large side management equipment, The oxygen supply which supplies oxygen, and the adjustment which adjusts the amount of oxygen supplied to a home oxygen medical-treatment patient from this oxygen supply, and is supervised based on these prescription data inputted from this 3rd transmission equipment, With this adjustment, it had an oxygen supply means to supply the oxygen to which the amount was adjusted to a patient, and is, and residence side management equipment is included. This ***** side management equipment In this adjustment, it consists in the prescription malfunction detection / monitoring system for home oxygen medical treatment characterized by notifying the abnormal occurrence alarm at the time of detecting the abnormalities by which the oxygen injection to a patient is not performed as these prescription data to this hospital side management equipment through this management pin center, large side management equipment. [0006] In invention according to claim 1 the prescription malfunction detection / monitoring system for home oxygen medical treatment The 1st computer which is arranged in a hospital and memorizes a home oxygen medical-treatment patient's prescription data, Hospital side management equipment

equipped with the 1st transmission equipment which transmits these prescription data from this 1st computer, The 2nd transmission equipment which receives these prescription data that are arranged in the management pin center, large and sent from hospital side management equipment, Management pin center, large side management equipment equipped with the 2nd computer which memorizes the received prescription data, The 3rd transmission equipment which receives the prescription data which a patient is, are arranged in a residence and sent from management pin center, large side management equipment, The oxygen supply which supplies oxygen, and the adjustment which adjusts the amount of oxygen supplied to a home oxygen medical-treatment patient from an oxygen supply, and is supervised based on these prescription data inputted from the 3rd transmission equipment, With an adjustment, it had an oxygen supply means to supply the oxygen to which the amount was adjusted to a patient, and is, and residence side management equipment is included. It is and residence side management equipment notifies the abnormal occurrence alarm at the time of detecting the abnormalities by which the oxygen injection to a patient is not performed as these prescription data to hospital side management equipment through management pin center, large side management equipment in an adjustment.

[0007] Since an abnormal occurrence alarm is notified to a hospital side and emergency can be quickly coped with when the abnormalities which the oxygen injection as a prescription is performed to a home oxygen medical-treatment patient, and are not performed as prescription data by that cause are detected, safe and proper home oxygen medical treatment can be performed.

[0008] Residence side management equipment consists in the prescription malfunction detection / monitoring system for a home oxygen medical treatment according to claim 1 characterized by invention according to claim 2 made in order to solve the above-mentioned technical problem notifying the oxygen injection track record data to said said patient in said adjustment to said hospital side management equipment through said management pin center, large side management equipment further by being.

[0009] In invention according to claim 2, it is and residence side management equipment notifies the oxygen injection track record data to said patient in an adjustment to hospital side management equipment through management pin center, large side management equipment further.

[0010] Thereby, a patient is and the oxygen injection track record in a residence can grasp by the hospital side.

[0011] Invention according to claim 3 made in order to solve the above-mentioned technical problem The 3rd computer which memorizes said prescription data into which said adjustment is inputted from said 3rd transmission equipment, Said oxygen supply and oxygen supply way prepared between said oxygen supply means, and the closing motion valve by which is installed in the interior of said oxygen supply way, and closing motion control is carried out based on said prescription data by said 3rd computer, It is prepared in the lower stream of a river of this closing motion valve, the flow rate of the oxygen which flows this oxygen supply way is detected, and it consists in the prescription malfunction detection / monitoring system for a home oxygen medical treatment according to claim 1 or 2 characterized by including the flow rate sensor which supplies a detection output to this 3rd computer.

[0012] In invention according to claim 3 an adjustment The 3rd computer which memorizes the prescription data inputted from the 3rd transmission equipment, An oxygen supply, the oxygen supply way prepared between oxygen supply means, and the closing motion valve by which is installed in the interior of an oxygen supply way, and closing motion control is carried out based on prescription data by 3rd computer, It is prepared in the lower stream of a river of a closing motion valve, the flow rate of the oxygen which flows an oxygen supply way is detected, and the flow rate sensor which supplies a detection output to this 3rd computer is included.

[0013] Oxygen inhalation comes to be finely managed as the prescription which the medical practitioner created [the patient who is recuperating at home] by that cause. Therefore, it is lost that un-proper oxygen inhalation is performed, it has a bad influence on a patient and the trouble of worsening a symptom is lost.

[0014] Invention according to claim 4 made in order to solve the above-mentioned technical problem Said adjustment contains the carbonic acid gas sensor which detects the carbon dioxide gas contained in the exhalation of the going-out switch operated in case a patient goes out, or a patient.

Said 3rd computer Based on ON of this going-out switch, OFF, or the detection output of this carbonic acid gas sensor, it consists in the prescription malfunction detection / monitoring system for a home oxygen medical treatment according to claim 1 or 2 characterized by judging being home or going out of a patient.

[0015] In invention according to claim 4, said 3rd computer judges being home or going out of a patient based on ON of this going-out switch, OFF, or the detection output of this carbonic acid gas sensor including the carbonic acid gas sensor which detects the carbon dioxide gas contained in the exhalation of the going-out switch or patient who operates an adjustment in case a patient goes out.

[0016] Thereby, being home or going out of a patient is checked, and it can judge whether proper home oxygen medical treatment is performed.

[0017] Invention according to claim 5 made in order to solve the above-mentioned technical problem consists in the prescription malfunction detection / monitoring system for a home oxygen medical treatment according to claim 1 or 2 characterized by to constitute said management pin center, large side management equipment so that said hospital side management equipment or said accounting of as opposed to [are and] the abnormal occurrence alarm to residence side management equipment and/or information offer of oxygen injection track record data may be performed.

[0018] It sets to invention according to claim 5, and management pin center, large side management equipment is constituted so that, or it may be and accounting to the abnormal occurrence alarm to residence side management equipment and/or information offer of oxygen injection track record data may be performed. [hospital side management]

[0019] Thereby, a management pin center, large side can charge the proper commission to agency of information offer.

[0020]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained based on a drawing. Drawing 1 is the block diagram showing the gestalt of operation of the prescription malfunction detection / monitoring system for the home oxygen medical treatment by this invention.

[0021] The amount of oxygen which a patient is, is in a residence 1 and is supplied from an oxygen supply 2 and an oxygen supply 2 as residence side management equipment is adjusted, and it has the adjustment 3 to supervise, the oxygen supply means 4 which consists of nose KANYURA which supplies the oxygen to which the amount was adjusted with the adjustment 3 to a patient, and the transmission equipment (it works as the 3rd transmission equipment) 5 which transmits the data in an adjustment 3.

[0022] The hospital 10 is equipped with the computer (it works as the 1st computer) 11 which inputs and memorizes the contents of the prescription which the medical practitioner in charge of a patient created as hospital side management equipment, and the transmission equipment (it works as the 1st transmission equipment) 12 which transmits the data from a computer 11.

[0023] The management pin center, large 20 is equipped with the computer (it works as the 2nd computer) 21 which manages the data which a patient is and are exchanged between a residence 1 and a hospital 10 as management pin center, large side management equipment, and the transmission equipment (it works as the 2nd transmission equipment) 12 which transmits the data from a computer 21.

[0024] Although each transmission equipment 5, 12, and 22 is constituted so that data can be exchanged with either wire communication methods, such as the telephone line, or the radio method which uses a predetermined modulation technique, it shall depend on the wire communication method by the telephone line as an example here.

[0025] In drawing 1, in case a patient's house etc. is in the patient who was doing oxygen medical treatment in the hospital 10 from hospital medical treatment and he shifts to the home oxygen medical treatment in a residence 1, the medical practitioner in charge supplies a prescription required for home oxygen medical treatment of a patient, for example, oxygen, in between when, and creates what indicated directions which are called between pause when. Data, such as an oxygen injection flow rate per time amount, an input, and continuation / intermittence / quiescent-time band, are contained in this home oxygen medical-treatment prescription. This prescription data is sent to the management pin center, large 20 through the telephone line by transmission equipment 12 from a

computer 11 while it is memorized by the memory (not shown) of a computer 11.

[0026] While the prescription data sent to the management pin center, large 20 are received through transmission equipment 22 from a hospital 10 and the memory (not shown) of a computer 21 memorizes, a patient is in the memorized prescription data through transmission equipment 22, and they are sent to a residence 1.

[0027] It is received by transmission equipment 5 and the prescription data which the patient was and were sent to the residence 1 from the management pin center, large 20 are inputted into an adjustment 3.

[0028] An adjustment 3 adjusts the amount of oxygen supplied to the oxygen supply means 4 from an oxygen supply 2 as the prescription data into which it was inputted.

[0029] Drawing 2 is the outline block diagram showing the example of a configuration of the adjustment 3 in drawing 1. In drawing 2 an adjustment 3 Microcomputer (it works as 3rd computer) (henceforth microcomputer) 3a, It has an oxygen supply 2, oxygen supply way 3b prepared between the oxygen supply means 4, closing motion valve 3c installed in the interior of oxygen supply way 3b, flow (it works as flow rate sensor) sensor 3d prepared in the lower stream of a river of closing motion valve 3c, carbonic acid gas sensor 3e, and going-out switch 3f. Closing motion valve 3c consists of a stepping motor 3c2 which carries out the closing motion drive of a needle valve 3c1 and the needle valve 3c1.

[0030] Microcomputer 3a drives a stepping motor 3c2, and carries out closing motion control of the needle valve 3c1 so that the prescription data (data, such as an oxygen injection flow rate per time amount, an input, and continuation / intermittence / quiescent-time band) inputted from transmission equipment 5 may be memorized to an internal memory (not shown) and oxygen may be supplied as this data from an oxygen supply 2 at the oxygen supply means 4. And microcomputer 3a measures an instant flow rate by flow sensor 3d, and always controls it to the flow rate as the set point.

[0031] Moreover, microcomputer 3a supervises a flow sensor 3d output, and it sends it to the management pin center, large 20 through transmission equipment 5 while it memorizes oxygen injection track record data to an internal memory. The management pin center, large 20 is sent to addressing to the medical practitioner in charge of a hospital 10 through transmission equipment 22 while it memorizes the sent oxygen injection track record data in the memory of a computer 21.

[0032] Furthermore, microcomputer 3a sends an abnormal occurrence alarm to the management pin center, large 20 through transmission equipment 5, when the abnormalities by which supply of oxygen is not performed as monitor prescription data are detected based on a flow sensor 3d output.

[0033] The management pin center, large 20 is sent to addressing to the medical practitioner in charge of a hospital 10 through transmission equipment 22 while it memorizes the sent abnormal occurrence alarm in the memory of a computer 21. the patient to whom the management pin center, large 20 is in a patient, and its abnormal occurrence alarm is in a residence 1 at this time -- you may constitute so that it may transmit also to the guardian in whom he or a patient is and who is present in a residence 1 or other locations.

[0034] When microcomputer 3a continues after alarm offer of an above-mentioned abnormal occurrence and abnormalities are detected, it notifies the above-mentioned persons concerned (namely, the medical practitioner in charge, a patient him, a guardian, etc.) of the alarm of an abnormal occurrence through the management pin center, large 20 again, or demands emergency service.

[0035] About emergency service, it can consider as the system which delivers directions that a patient is, a patient is in the delivery van or taxi nearest to a residence 1 based on the position warning of an oxygen gas supply delivery van, and it hastens to a residence.

[0036] moreover, the carbon-dioxide-gas concentration level by carbonic acid gas sensor 3e which can detect the low-concentration carbon dioxide gas with which microcomputer 3a is contained in a patient's exhalation or a going-out switch 3f patient -- it can judge whether a home oxygen medical-treatment patient checks being home or going out, and proper home oxygen medical treatment is performed by one of ON by him, and the OFF actuation signals.

[0037] Moreover, the management pin center, large 20 may be constituted so that it may charge to information offer of an above-mentioned abnormal occurrence alarm, oxygen injection track record data, etc. Thereby, the management pin center, large 20 can charge the proper commission to agency

of information offer.

[0038] Thus, superfluous oxygen supply can be lost under the proper management and the monitor to home oxygen medical treatment, and relief and proper medical treatment can be offered by the monitor of the oxygen supply to a patient. Moreover, the plan of the oxygen gas amount of supply can grasp in the management pin center, large. And it is realizable in the coordinated medicine between a patient, a guardian, and the medical practitioner in charge having quantified. Moreover, oxygen inhalation comes to be finely managed as the prescription which the medical practitioner created [the patient who is recuperating at home]. Therefore, it is lost that un-proper oxygen inhalation is performed, it has a bad influence on a patient and the trouble of worsening a symptom is lost.

[0039] Although the gestalt of operation of this invention was explained as above, not only this but various deformation and application are possible for this invention.

[0040]

[Effect of the Invention] Since an abnormal occurrence alarm is notified to a hospital side and emergency can be quickly coped with when the abnormalities which the oxygen injection as a prescription is performed to a home oxygen medical-treatment patient, and are not performed as prescription data are detected according to invention according to claim 1, safe and proper home oxygen medical treatment can be performed.

[0041] According to invention according to claim 2, a patient is and the oxygen injection track record in a residence can grasp by the hospital side.

[0042] According to invention according to claim 3, oxygen inhalation comes to be finely managed as the prescription which the medical practitioner created [the patient who is recuperating at home]. Therefore, it is lost that un-proper oxygen inhalation is performed, it has a bad influence on a patient and the trouble of worsening a symptom is lost.

[0043] According to invention according to claim 4, being home or going out of a patient is checked, and it can judge whether proper home oxygen medical treatment is performed.

[0044] According to invention according to claim 5, a management pin center, large side can charge the proper commission to agency of information offer.

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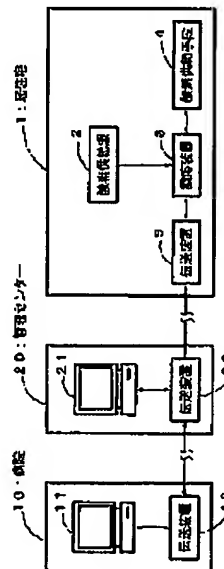
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(54) 【発明の名称】 在宅酸素療養のための処方箋異常検出/監視システム

(57) 【要約】

【課題】 在宅酸素療養において処方箋通りに酸素を供給する在宅酸素療養のための処方箋異常検出/監視システムを提供すること。

【解決手段】 在宅酸素療養患者の処方箋データを記憶する第1のコンピュータ11及び第1の伝送装置12を備えた病院側管理装置と、第2の伝送装置22及び第2のコンピュータ21を備えた管理センター側管理装置と、管理センター側管理装置から送られる処方箋データを受信する第3の伝送装置5、酸素供給源2、処方箋データに基づいて、酸素量を調節、監視する調節装置3及び調節装置3で量が調整された酸素を患者に供給する酸素供給手段4を備えた居住宅側管理装置を含む。居住宅側管理装置は、調節装置3において、患者への酸素投入が該処方箋データ通りに行われない異常を検出した場合の異常発生警報を、管理センター側管理装置を介して病院側管理装置へ通報する。



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(2)

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【特許請求の範囲】

【請求項1】 病院に配置され、在宅酸素療養患者の処方箋データを記憶する第1のコンピュータと、該第1のコンピュータよりの該処方箋データを伝送する第1の伝送装置とを備えた病院側管理装置と、

管理センターに配置され、該病院側管理装置から送られる該処方箋データを受信する第2の伝送装置と、受信された処方箋データを記憶する第2のコンピュータとを備えた管理センター側管理装置と、

患者の居住宅に配置され、該管理センター側管理装置から送られる該処方箋データを受信する第3の伝送装置と、酸素を供給する酸素供給源と、該第3の伝送装置から入力される該処方箋データに基づいて、該酸素供給源から在宅酸素療養患者に供給される酸素量を調節、監視する調節装置と、該調節装置で量が調整された酸素を患者に供給する酸素供給手段とを備えた居住宅側管理装置とを含み、

該居住宅側管理装置は、該調節装置において、患者への酸素投入が該処方箋データ通りに行われない異常を検出した場合の異常発生警報を、該管理センター側管理装置を介して該病院側管理装置へ通報することを特徴とする在宅酸素療養のための処方箋異常検出／監視システム。

【請求項2】 前記居住宅側管理装置は、さらに、前記調節装置における前記患者への酸素投入実績データを、前記管理センター側管理装置を介して前記病院側管理装置へ通報することを特徴とする請求項1記載の在宅酸素療養のための処方箋異常検出／監視システム。

【請求項3】 前記調節装置は、前記第3の伝送装置から入力される前記処方箋データを記憶する第3のコンピュータと、前記酸素供給源と前記酸素供給手段間に設けられた酸素供給路と、前記酸素供給路の内部に設置され、前記第3のコンピュータにより前記処方箋データに基づいて開閉制御される開閉弁と、該開閉弁の下流に設けられ、該酸素供給路を流れる酸素の流量を検出して、検出出力を該第3のコンピュータに供給する流量センサと、を含むことを特徴とする請求項1または2記載の在宅酸素療養のための処方箋異常検出／監視システム。

【請求項4】 前記調節装置は、患者が外出する際操作する外出スイッチまたは患者の呼気に含まれる炭酸ガスを検出する炭酸ガスセンサを含み、前記第3のコンピュータは、該外出スイッチのオン、オフまたは該炭酸ガスセンサの検出出力に基づき、患者の在宅か外出かを判断することを特徴とする請求項1または2記載の在宅酸素療養のための処方箋異常検出／監視システム。

【請求項5】 前記管理センター側管理装置は、前記病院側管理装置または前記居住宅側管理装置への異常発生

警報及び／または酸素投入実績データの情報提供に対する課金を行うように構成されていることを特徴とする請求項1または2記載の在宅酸素療養のための処方箋異常検出／監視システム。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、在宅酸素療養のための処方箋異常検出／監視システムに関するものである。

【0002】

【従来の技術】ぜんそく等の慢性呼吸不全の患者には、きめの細かい酸素吸入が必要である。時間当たりの酸素投入流量、連続／断続、休止時間等を、その患者の症状に合わせて管理することが必要である。しかし、病院のベッド数の問題や患者の意志により、在宅療養を希望するケースも多い。

【0003】

【発明が解決しようとする課題】本来、病院においては、看護婦がこまめに酸素吸入量、時間を管理しているが、在宅療養している患者は、果たして医師が作成した処方箋通りに酸素吸入が管理されているか疑問である。不適正な酸素吸入は、患者に悪影響を与え、症状を悪化させてしまうという問題点がある。

【0004】そこで、本発明は、上述した従来の問題点に鑑み、在宅酸素療養において処方箋通りに酸素を供給する在宅酸素療養のための処方箋異常検出／監視システムを提供することを目的としている。

【0005】

【課題を解決するための手段】上記課題を解決するためになされた請求項1記載の発明は、病院に配置され、在宅酸素療養患者の処方箋データを記憶する第1のコンピュータと、該第1のコンピュータよりの該処方箋データを伝送する第1の伝送装置とを備えた病院側管理装置と、管理センターに配置され、該病院側管理装置から送られる該処方箋データを受信する第2の伝送装置と、受信された処方箋データを記憶する第2のコンピュータとを備えた管理センター側管理装置と、患者の居住宅に配置され、該管理センター側管理装置から送られる該処方箋データを受信する第3の伝送装置と、酸素を供給する酸素供給源と、該第3の伝送装置から入力される該処方箋データに基づいて、該酸素供給源から在宅酸素療養患者に供給される酸素量を調節、監視する調節装置と、該調節装置で量が調整された酸素を患者に供給する酸素供給手段とを備えた居住宅側管理装置とを含み、該居住宅側管理装置は、該調節装置において、患者への酸素投入が該処方箋データ通りに行われない異常を検出した場合の異常発生警報を、該管理センター側管理装置を介して該病院側管理装置へ通報することを特徴とする在宅酸素療養のための処方箋異常検出／監視システムに存する。

【0006】請求項1記載の発明においては、在宅酸素

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療養のための処方箋異常検出／監視システムは、病院に
 設置され、在宅酸素療養患者の処方箋データを記憶する
 第1のコンピュータと、該第1のコンピュータよりの該
 処方箋データを伝送する第1の伝送装置とを備えた病院
 側管理装置と、管理センターに設置され、病院側管理装
 置から送られる該処方箋データを受信する第2の伝送装
 置と、受信された処方箋データを記憶する第2のコンピ
 ュータとを備えた管理センター側管理装置と、患者の居
 住宅に設置され、管理センター側管理装置から送られる
 処方箋データを受信する第3の伝送装置と、酸素を供給
 する酸素供給源と、第3の伝送装置から入力される該処
 方箋データに基づいて、酸素供給源から在宅酸素療養患
 者に供給される酸素量を調節、監視する調節装置と、調
 節装置で量が調整された酸素を患者に供給する酸素供給
 手段とを備えた居住宅側管理装置とを含む。居住宅側管
 理装置は、調節装置において、患者への酸素投入が該処
 方箋データ通りに行われぬ異常を検出した場合の異常
 発生警報を、管理センター側管理装置を介して病院側管
 理装置へ通報する。

【0007】それにより、在宅酸素療養患者に対して処
 方箋通りの酸素投入が行われ、もし処方箋データ通りに
 行われぬ異常を検出した場合は、異常発生警報が病院
 側に通報され、緊急事態に迅速に対処できるので、安心
 かつ適正な在宅酸素療養を行うことができる。

【0008】上記課題を解決するためになされた請求項
 2記載の発明は、前記居住宅側管理装置は、さらに、前
 記調節装置における前記患者への酸素投入実績データ
 を、前記管理センター側管理装置を介して前記病院側管
 理装置へ通報することを特徴とする請求項1記載の在宅
 酸素療養のための処方箋異常検出／監視システムに存す
 る。

【0009】請求項2記載の発明においては、居住宅側
 管理装置は、さらに、調節装置における前記患者への酸
 素投入実績データを、管理センター側管理装置を介して
 病院側管理装置へ通報する。

【0010】それにより、患者の居住宅における酸素投
 入実績が、病院側で把握できる。

【0011】上記課題を解決するためになされた請求項
 3記載の発明は、前記調節装置は、前記第3の伝送装置
 から入力される前記処方箋データを記憶する第3のコン
 ピュータと、前記酸素供給源と前記酸素供給手段間に設
 けられた酸素供給路と、前記酸素供給路の内部に設置さ
 れ、前記第3のコンピュータにより前記処方箋データに
 基づいて開閉制御される開閉弁と、該開閉弁の下流に設
 けられ、該酸素供給路を流れる酸素の流量を検出して、
 検出出力を該第3のコンピュータに供給する流量センサ
 と、を含むことを特徴とする請求項1または2記載の在
 宅酸素療養のための処方箋異常検出／監視システムに存
 する。

【0012】請求項3記載の発明においては、調節装置

は、第3の伝送装置から入力される処方箋データを記憶
 する第3のコンピュータと、酸素供給源と酸素供給手段
 間に設けられた酸素供給路と、酸素供給路の内部に設置
 され、第3のコンピュータにより処方箋データに基づい
 て開閉制御される開閉弁と、開閉弁の下流に設けられ、
 酸素供給路を流れる酸素の流量を検出して、検出出力を
 該第3のコンピュータに供給する流量センサとを含む。

【0013】それにより、在宅療養している患者が、医
 師が作成した処方箋通りにきめ細かく酸素吸入が管理さ
 れるようになる。したがって、不適正な酸素吸入が行わ
 れることがなくなり、患者に悪影響を与え、症状を悪化
 させてしまうという問題点がなくなる。

【0014】上記課題を解決するためになされた請求項
 4記載の発明は、前記調節装置は、患者が外出する際操
 作する外出スイッチまたは患者の呼気に含まれる炭酸ガ
 スを検出する炭酸ガスセンサを含み、前記第3のコンピ
 ュータは、該外出スイッチのオン、オフまたは該炭酸ガ
 スセンサの検出出力に基づき、患者の在宅か外出かを判
 断することを特徴とする請求項1または2記載の在宅酸
 素療養のための処方箋異常検出／監視システムに存す
 る。

【0015】請求項4記載の発明においては、調節装置
 は、患者が外出する際操作する外出スイッチまたは患者
 の呼気に含まれる炭酸ガスを検出する炭酸ガスセンサを
 含み、前記第3のコンピュータは、該外出スイッチのオ
 ン、オフまたは該炭酸ガスセンサの検出出力に基づき、
 患者の在宅か外出かを判断する。

【0016】それにより、患者の在宅または外出がチェ
 ックされ、適正な在宅酸素療養が行われているか否かを
 判断することができる。

【0017】上記課題を解決するためになされた請求項
 5記載の発明は、前記管理センター側管理装置は、前記
 病院側管理装置または前記居住宅側管理装置への異常発
 生警報及び／または酸素投入実績データの情報提供に対
 する課金を行うように構成されていることを特徴とする
 請求項1または2記載の在宅酸素療養のための処方箋異
 常検出／監視システムに存する。

【0018】請求項5記載の発明においては、管理セン
 ター側管理装置は、病院側管理装置または居住宅側管理
 装置への異常発生警報及び／または酸素投入実績データ
 の情報提供に対する課金を行うように構成されている。

【0019】それにより、管理センター側は、情報提供
 の仲介に対する適正な手数料を請求することができる。

【0020】

【発明の実施の形態】以下、本発明の実施の形態を図面
 に基づいて説明する。図1は、本発明による在宅酸素療
 養のための処方箋異常検出／監視システムの実施の形態
 を示すブロック図である。

【0021】患者の居住宅1には、居住宅側管理装置と
 して、酸素供給源2と、酸素供給源2から供給される酸

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素量を調節し、監視する調節装置3と、調節装置3で値が調整された酸素を患者に供給する酸素ニューラ等からなる酸素供給手段4と、調節装置3におけるデータを伝送する(第3の伝送装置として働く)伝送装置5とが備えられている。

【0022】病院10には、病院側管理装置として、患者の担当医師が作成した処方箋の内容を入力、記憶する(第1のコンピュータとして働く)コンピュータ11と、コンピュータ11からのデータを伝送する(第1の伝送装置として働く)伝送装置12とが備えられている。

【0023】管理センター20には、管理センター側管理装置として、患者の居住宅1及び病院10との間でやりとりされるデータを管理する(第2のコンピュータとして働く)コンピュータ21と、コンピュータ21からのデータを伝送する(第2の伝送装置として働く)伝送装置22とが備えられている。

【0024】各伝送装置5、12、22は、電話回線等の有線通信方式、または所定の変調方式を使用する無線通信方式のどちらかによりデータのやりとりを行うことができるように構成されるが、ここでは一例として、電話回線による有線通信方式に依るものとする。

【0025】図1において、病院10で酸素療養していた患者が、病院療養から患者の自宅等の居住宅1における在宅酸素療養へ移行する際、担当医師は、患者の在宅酸素療養に必要な処方箋、たとえば、酸素を何時間供給して、何時間休止というような指示を記載したもの、を作成する。この在宅酸素療養処方箋には、時間当たりの酸素投入流量、投入量、連続/断続/休止時間帯等のデータが含まれる。この処方箋データは、コンピュータ11のメモリ(図示しない)に記憶されると共に、コンピュータ11から伝送装置12により電話回線を介して管理センター20へ送られる。

【0026】病院10より管理センター20へ送られた処方箋データは、伝送装置22を介して受信され、コンピュータ21のメモリ(図示しない)に記憶されると共に、記憶された処方箋データは、伝送装置22を介して患者の居住宅1に送られる。

【0027】管理センター20より患者の居住宅1へ送られた処方箋データは、伝送装置5で受信され、調節装置3に入力される。

【0028】調節装置3は、酸素供給源2から酸素供給手段4へ供給される酸素量を、入力された処方箋データ通りに調節する。

【0029】図2は、図1における調節装置3の構成例を示す概略構成図である。図2において、調節装置3は、(第3のコンピュータとして働く)マイクロコンピュータ(以下、マイコンという)3aと、酸素供給源2と酸素供給手段4の間に設けられた酸素供給路3bと、酸素供給路3bの内部に設置された開閉弁3cと、開閉

弁3cの下流に設けられた(流量センサとして働く)フローセンサ3dと、炭酸ガスセンサ3eと、外出スイッチ3fとを備えている。開閉弁3cは、たとえば、ニードル弁3c1とニードル弁3c1を開閉駆動するステッピングモータ3c2とからなる。

【0030】マイコン3aは、伝送装置5より入力された処方箋データ(時間当たりの酸素投入流量、投入量、連続/断続/休止時間帯等のデータ)を内蔵メモリ(図示しない)に記憶し、このデータ通りに酸素が酸素供給源2から酸素供給手段4に供給されるように、ステッピングモータ3c2を駆動してニードル弁3c1を開閉制御する。そして、マイコン3aは、フローセンサ3dで瞬時流量を計測し、常に設定値通りの流量に制御する。

【0031】また、マイコン3aは、フローセンサ3dの出力を監視し、酸素投入実績データを内蔵メモリに記憶すると共に伝送装置5を介して管理センター20に送る。管理センター20は、送られた酸素投入実績データをコンピュータ21のメモリに記憶すると共に、伝送装置22を介して病院10の担当医師宛に送る。

【0032】さらに、マイコン3aは、フローセンサ3dの出力に基づき、もし、監視処方箋データ通りに酸素の供給が行われていない異常を検出した場合は、異常発生警報を伝送装置5を介して管理センター20に送る。

【0033】管理センター20は、送られた異常発生警報を、コンピュータ21のメモリに記憶すると共に伝送装置22を介して病院10の担当医師宛に送る。この時、管理センター20は、異常発生警報を、患者の居住宅1にいる患者本人または患者の居住宅1もしくは他の場所にいる保護者にも送信するように構成しても良い。

【0034】マイコン3aは、上述の異常発生警報提供後も継続して異常を検出した場合は、再度異常発生警報を管理センター20を介して上述の関係者(すなわち、担当医師、患者本人、保護者など)に通知するかまたは緊急出動を要請する。

【0035】緊急出動については、酸素ガス供給配達車の位置警報を基に、患者の居住宅1に最も近い配達車またはタクシーに患者の居住宅へ急行するよう指示を伝達するシステムとすることができる。

【0036】また、マイコン3aは、患者の呼気に含まれる低濃度の炭酸ガスを検出できる炭酸ガスセンサ3eによる炭酸ガス濃度レベルまたは外出スイッチ3fの患者本人によるオン、オフ操作信号のどちらかにより、在宅酸素療養患者が在宅か外出をチェックして、適正な在宅酸素療養が行われているか否かを判断することができる。

【0037】また、管理センター20は、上述の異常発生警報や酸素投入実績データなどの情報提供に対して課金を行うように構成しても良い。それにより、管理センター20は、情報提供の仲介に対する適正な手数料を請求することができる。

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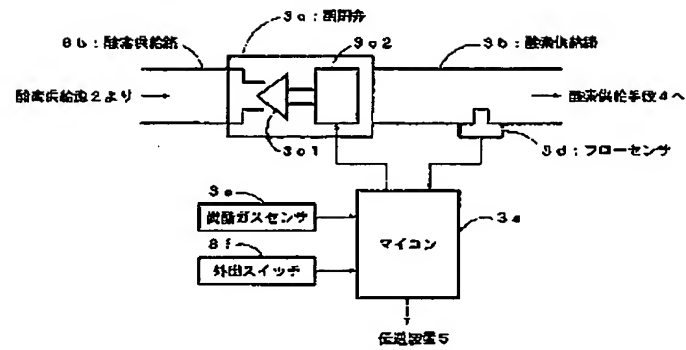
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【図2】



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